



Date: Jan. 17, 2014

From: WHO Collaborating Center for
Research, Training and Eradication of Dracunculiasis, CDC

Subject: GUINEA WORM WRAP-UP #223

To: Addressees

Detect Every Case!

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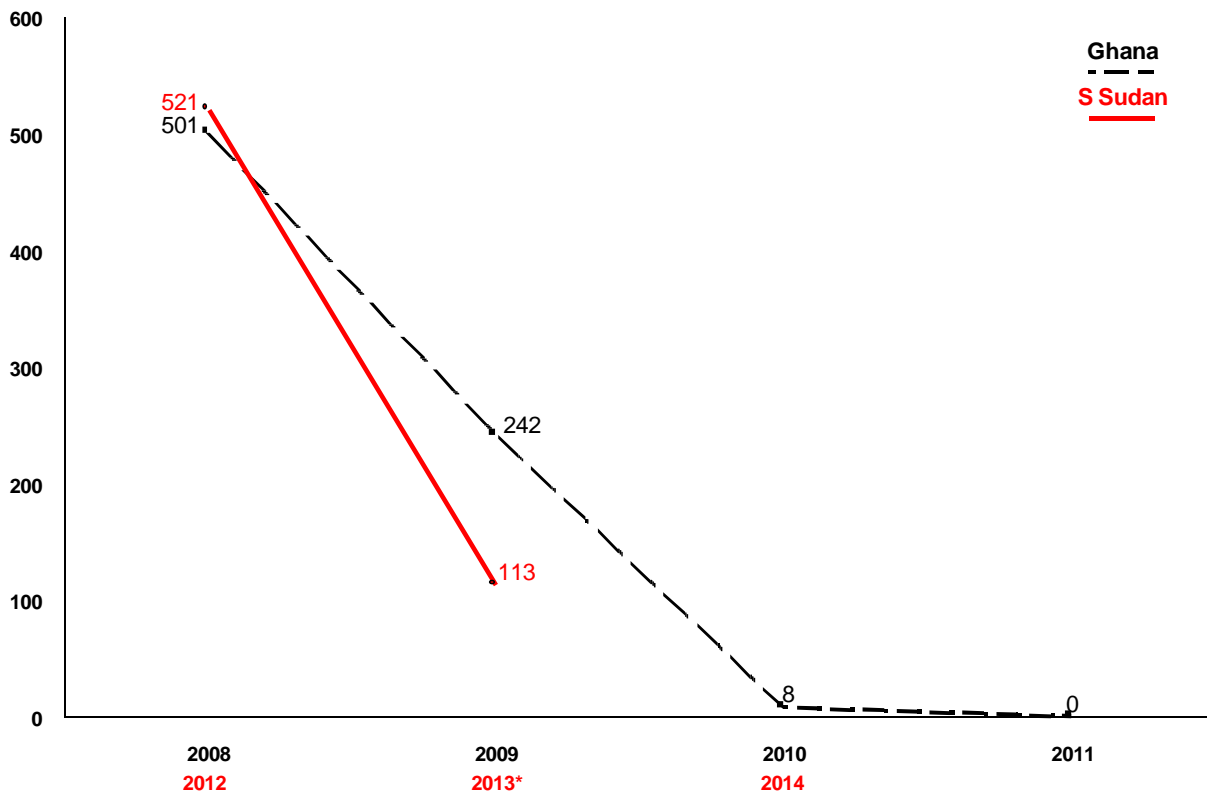
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SOUTH SUDAN: EVEN FEWER CASES EXPECTED IN 2014 DESPITE NEW POLITICAL CHALLENGE

The political violence that erupted in South Sudan on December 15, 2013 is unfortunate for many reasons, including its potential effect on the impending success of the South Sudan Guinea Worm Eradication Program (SSGWEP) (Figures 1 & 2, and Table 1). We note, however, that the disruption is occurring at the time of year when the incidence of Guinea worm disease is lowest (only 3 cases reported in December 2012-February 2013, with zero cases during January and November 2013). Moreover, the fighting has mostly been away from the highest remaining endemic area (Eastern Equatoria State reported 85 (75%) of the 113 cases in the country in January-November 2013). The SSGWEP also detected no cases in the first two weeks of December 2013, achieving a provisional 78% reduction in cases for 2013 (113 cases compared to the 521 cases reported in 2012).

Figure 1

Annual Indigenous Cases of Dracunculiasis: Ghana versus South Sudan



* Provisional

Despite the recent conflict, the impact of the SSGWEP’s intensified interventions in 2013 is secure, and South Sudan should still have many fewer cases of Guinea worm disease in 2014 than the 113 cases (provisional) it had in 2013. Although challenging, the SSGWEP with assistance from The Carter Center is moving now to restore surveillance and other operations in endemic areas of the three Kapoeta Counties of Eastern Equatoria State in time to detect and contain each of those cases that are expected there in 2014. SSGWEP operations in other endemic areas of South Sudan will follow as soon as security permits. If not, cases will occur in 2015. But for the time being, Ghana’s record rate of case reduction in the last three years of its program is still threatened by South Sudan’s rapid progress.

All 33 expatriate technical and operational staff to the program were evacuated to Kenya and 27 national staff to their home communities by December 20. All vehicles and other key assets were secured in the three main operational hubs of the program at Juba, Rumbeck and Kapoeta where additional security services have been engaged by The Carter Center. The national director of the SSGWEP, Mr. Samuel Makoy Yibi, is still in Juba and many Field Officers and village volunteers remain in place and working, although transportation and other operational support to provide supervision and supplies have been suspended for now.

Figure 2

South Sudan Guinea Worm Eradication Program
Cases of Dracunculiasis Reported by Month, 2011 - 2013*

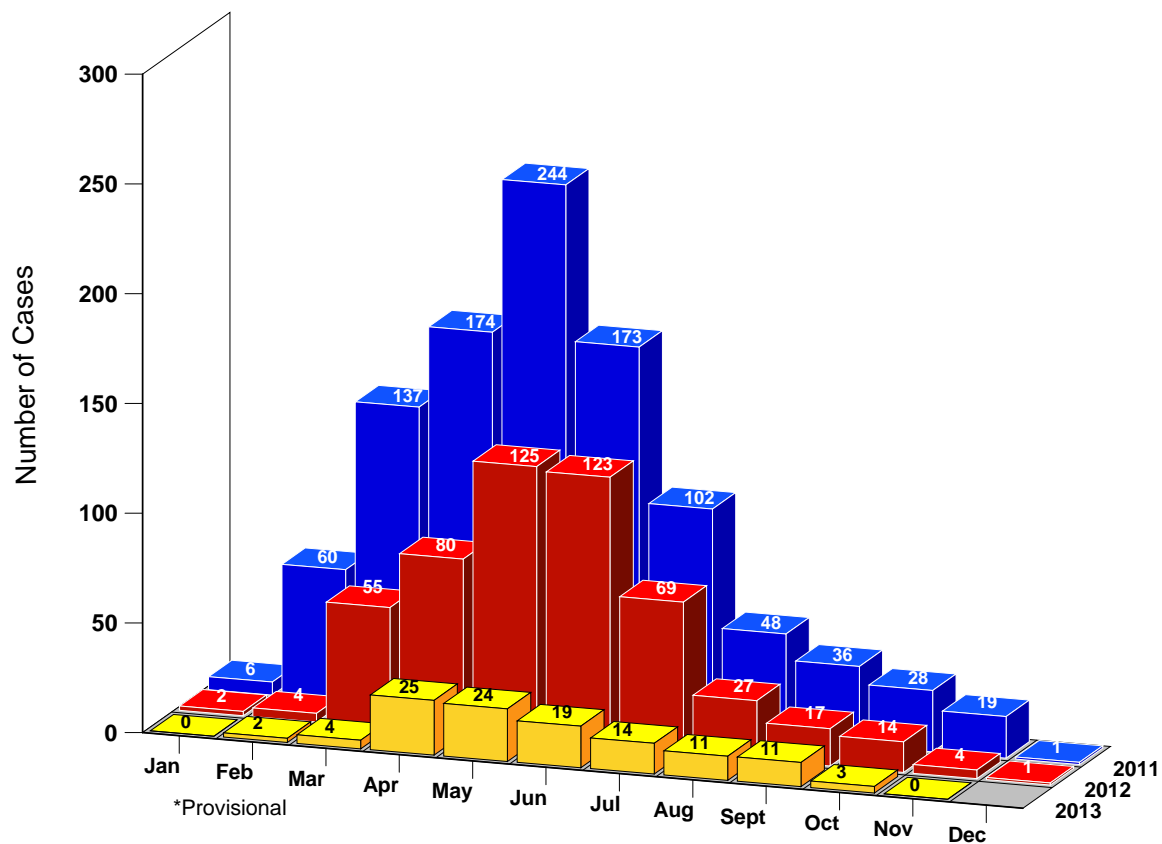


Table 1

SOUTH SUDAN GUINEA WORM ERADICATION PROGRAM
CASES REPORTED AND CONTAINED DURING 2013* BY STATE, COUNTY AND MONTH

State	County	Cases Contained / Cases Reported												% Contained	
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec		Total
Eastern Equatoria	Kapoeta East	0 / 0	1 / 2	0 / 2	17 / 20	17 / 21	12 / 15	5 / 5	5 / 7	3 / 5	0 / 0	0 / 0	/	60 / 77	78%
	Kapoeta North	0 / 0	0 / 0	0 / 0	1 / 2	2 / 2	0 / 1	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	/	3 / 5	60%
	Kapoeta South	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	1 / 3	0 / 0	0 / 0	0 / 0	0 / 0	/	1 / 3	33%
	STATE TOTAL	0 / 0	1 / 2	0 / 2	18 / 22	19 / 23	12 / 16	6 / 8	5 / 7	3 / 5	0 / 0	0 / 0	0 / 0	64 / 85	75%
Jonglei	Pibor	0 / 0	0 / 0	0 / 0	0 / 3	0 / 1	1 / 3	2 / 3	2 / 2	0 / 0	0 / 0	0 / 0	/	5 / 12	42%
	Nyiroi [^]	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 1	0 / 0	0 / 0	0 / 0	0 / 0	/	0 / 1	0%
	Uror [^]	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 1	0 / 0	0 / 0	/	0 / 1	0%
	TOTAL	0 / 0	0 / 0	0 / 0	0 / 3	0 / 1	1 / 3	2 / 4	2 / 2	0 / 1	0 / 0	0 / 0	0 / 0	5 / 14	36%
Warrap	Tonj North	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	/	0 / 0	0%
	Tonj East	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 1	0 / 0	/	0 / 1	0%
	Tonj South	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	/	0 / 0	0%
	Gogrial East	0 / 0	0 / 0	1 / 2	0 / 0	0 / 0	0 / 0	0 / 1	0 / 0	0 / 0	0 / 0	0 / 0	/	1 / 3	33%
STATE TOTAL	0 / 0	0 / 0	1 / 2	0 / 0	0 / 0	0 / 0	0 / 1	0 / 0	0 / 0	0 / 1	0 / 0	0 / 0	1 / 4	25%	
Northern Bahr Al Ghazal [^]	Aweil West [^]	/	/	/	/	/	/	0 / 1	0 / 0	0 / 0	0 / 0	0 / 0	/	0 / 1	0%
		/	/	/	/	/	/	0 / 1	0 / 0	0 / 0	0 / 0	0 / 0	/	0 / 1	0%
Western Bahr Al Ghazal	Jur River	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	/	0 / 0	0%
	TOTAL	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0%
Lakes	Awerial	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 2	4 / 5	2 / 2	0 / 0	/	6 / 9	67%
	STATE TOTAL	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 2	4 / 5	2 / 2	0 / 0	0 / 0	6 / 9	67%
SOUTH SUDAN TOTAL		0 / 0	1 / 2	1 / 4	18 / 25	19 / 24	13 / 19	8 / 14	7 / 11	7 / 11	2 / 3	0 / 0	0 / 0	76 / 113	67%
% CONTAINED		0%	50%	25%	72%	79%	68%	57%	64%	64%	67%			67%	

* Provisional: as of November 2013

[^] Under passive surveillance. New indigenous case

Insecurity in area this month, in Boma, Kassingor, Kassingor CC and Maruo. Of Pibor County. General insecurity in South Sudan beginning on Dec. 15, 2013.

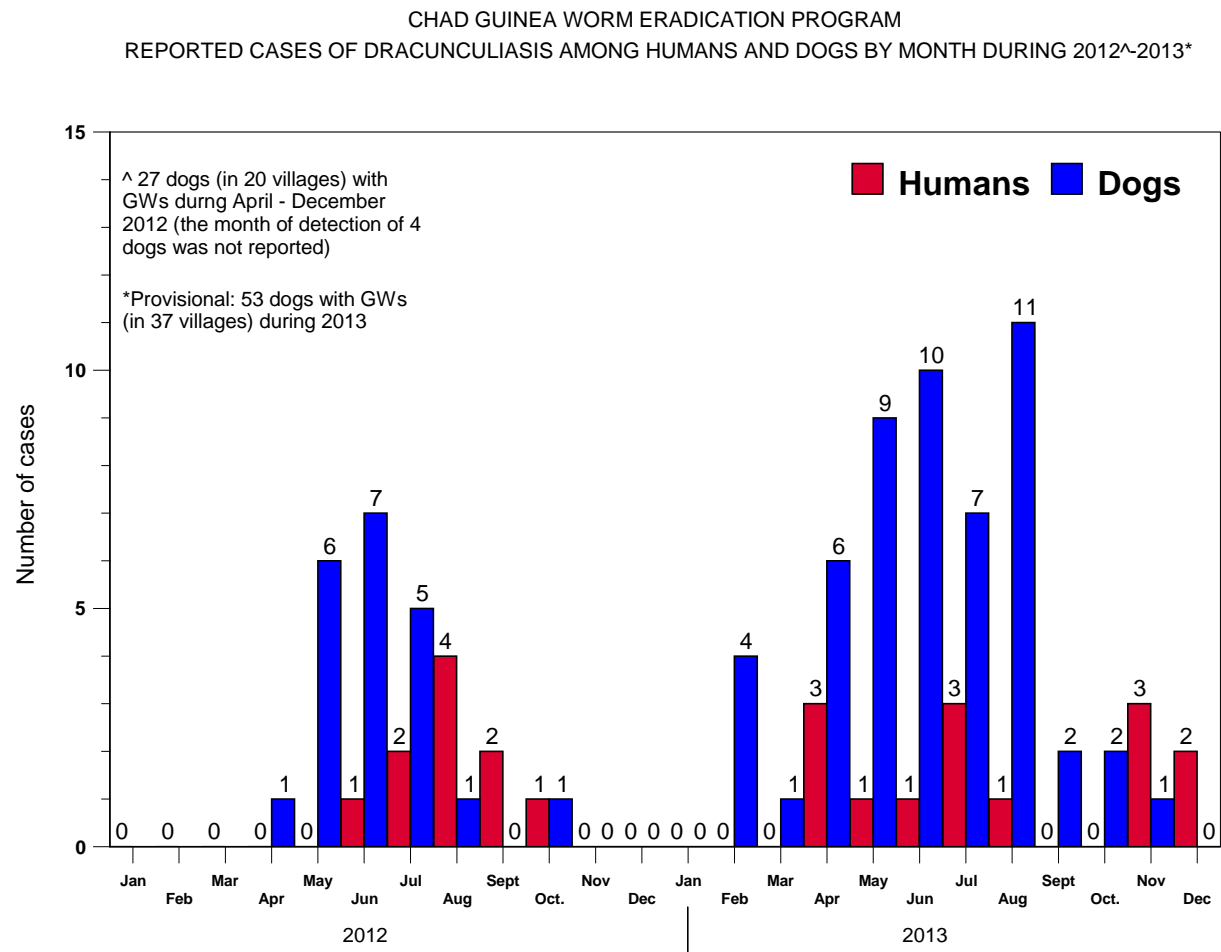
CHAD: EPIDEMIOLOGICAL CHALLENGE CONTINUES

A thorough report on the “peculiar epidemiology” of dracunculiasis transmission in Chad has just been published in the January 2014 issue of the *American Journal of Tropical Medicine and Hygiene*, accompanied by a pensive editorial entitled “Mother Nature’s Surprises” (see **RECENT PUBLICATIONS** in this issue). As reported in the article itself, which covers the period 2010-June 2013, it appears that in this current outbreak in Chad an aberrant life cycle of *Dracunculus medinensis* involving a paratenic (transport) host [undercooked or raw fish] consumed by people and dogs is occurring, wherein the cases in humans are sporadic and incidental and where infection in dogs is the major driving force sustaining transmission. A total of 56 infections in dogs and 35 cases in humans were reported during the period of the report (Figure 3)

- 14 cases of GWD were reported from 10 villages during 2013. None of these villages had reported cases of GWD during 2010-2012.
- 53 dogs were detected with emerging Guinea worms in 37 villages during 2013 versus 27 dogs from 20 villages during April – December 2012.
- Dogs with Guinea worms were confirmed in 52 villages during April 2012 - 2013.
- Only 5 (10%) of 52 villages reported dogs with Guinea worms both in 2012 and 2013.
- Only 2 (4%) of 52 villages reporting dogs with Guinea worms in 2013 also reported GWD in humans.

Several specimens of worms submitted to CDC from humans and dogs in Chad were indistinguishable from *D. medinensis* on morphological examination and genetic analysis.

Figure 3



Some actions based on recommendations of a workshop convened by the Ministry of Public Health last October are still pending, but efforts to encourage villagers at risk to cook fish well and to not allow dogs to consume raw entrails from fish are underway.

Meanwhile, a cluster of 5 cases of Guinea worm disease (3 males and 2 females, age range 6-37) reported by Chad in November and December 2013 were all from a single new village, Maimou, in Sarh District, which is outside of the area currently under active surveillance by the GWEP. The onset of GWD in three of the cases occurred in November and the other two in December; none of the 5 cases was contained. A case search conducted in late December by Mr. Tchoufienet Moundaj, Deputy national GWEP coordinator and Mr. Miyara Padjaina, GWEP officer in charge of medical care, in 5 communities within a 10 kilometer radius from Maimou for cases of GWD found none. Residents in the 6 communities (including Maimou) are both farmers and fishermen. Residents from Maimou and other villages joined for a mass harvest of fish during 5-6 December 2013. Knowledge of GWD is low as is awareness about the reward for cases of the disease. None of the villages have safe sources of drinking water. One existing borehole well in Maimou is not functional since July 2013. No relationship between the 5 cases in Maimou Village and 2 other cases from two different villages of Sarh District in 2012 was established. Assessments of dogs in Maimou Village counted 48 dogs, of which 11 (23%) were alleged to have had one or more worms emerge from the skin during the preceding 12 months. Residents claimed that worms emerging from dogs were first observed during July 2012. One contaminated unsafe source of drinking water could not be treated with ABATE® Larvicide as it was dry at the time of the assessment. Cloth and pipe filters were provided to the 82 households (population 648), and four patients and two informants received the reward. The Carter Center will assist the GWEP to establish active village-based surveillance in Maimou and surrounding villages as soon as possible.

IN BRIEF

Ethiopia. The Ethiopian Dracunculiasis Eradication Program (EDEP) held a Technical Working Group Meeting in Addis Ababa on December 30, 2013, where it discussed interventions and other actions being taken in Abobo and Itang Districts of Gambella Region. A team of experts was to visit Itang District from January 10th to set up active surveillance and interventions in Elia Sub-district, where a case was detected in April 2013. Carter Center Country Representative Dr. Zerihun Tadesse visited Abobo and Itang Districts on December 17-20. His interviews of 67 residents of Elia town on December 20th revealed poor knowledge of Guinea worm disease transmission and prevention, and of the cash reward for reporting a case of the disease. Although 51 (76%) had heard of the reward, only 10 (15%) knew how Guinea worm disease is transmitted, between 5% and 31% knew of different prevention methods, and 5% reported complete information about the reward. As of December 2013, The Carter Center had helped train 123 village-based volunteers for active surveillance and other Guinea worm activities in 58 villages of Abobo District. The EDEP plans to hold its annual review meeting in Addis Ababa on March 17-18.

Sudan. The Federal Ministry of Health has invited The Carter Center to help establish and implement active surveillance and interventions for Guinea worm disease in the Kafia Kingi area, where three cases were reported in June (2 cases) and September (1 case) 2013. This remote area in southwest Sudan borders the Republic South Sudan and the Central African Republic.

Nigeria. On the last day of the meeting of the Joint African Forum (JAF) of the African Program for Onchocerciasis Control (APOC) in Brazzaville in December 2013, Nigeria's Director of Public Health Dr. Bridget Okoeguale announced to loud applause that her minister had just received official notice from the World Health Organization of WHO's certification of Nigeria as having eliminated Guinea worm disease. She thanked many partners and noted the epic nature of Nigeria's accomplishment before calling on all of Africa to get behind the effort to finish eradicating the disease in the final four endemic countries, a statement which elicited another round of applause.

Table 2

Number of Reported Cases of Guinea Worm Disease Contained and Number Reported by Month during 2013*
(Countries arranged in descending order of cases in 2012)

COUNTRIES WITH ENDEMIC TRANSMISSION	NUMBER OF CASES CONTAINED / NUMBER OF CASES REPORTED													% CONT.
	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	TOTAL*	
SOUTH SUDAN [^]	0 / 0	1 / 2	1 / 4	18 / 25	19 / 24	13 / 19	8 / 14	7 / 11	7 / 11	2 / 3	0 / 0	/	76 / 113	67
CHAD	0 / 0	0 / 0	0 / 0	3 / 3	1 / 1	0 / 1	3 / 3	1 / 1	0 / 0	0 / 0	0 / 3	0 / 2	8 / 14	57
MALI [§]	0 / 0	0 / 0	0 / 0	0 / 0	0 / 3	1 / 1	0 / 0	0 / 0	1 / 1	1 / 2	4 / 4	0 / 0	7 / 11	64
ETHIOPIA	1 / 1	0 / 0	0 / 0	0 / 1	3 / 4	0 / 1	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	4 / 7	57
TOTAL*	1 / 1	1 / 2	1 / 4	21 / 29	23 / 32	14 / 22	11 / 17	8 / 12	8 / 12	3 / 5	4 / 7	0 / 2	95 / 145	66
% CONTAINED	0	50	25	72	72	64	65	67	67	60	57	0	66	

COUNTRIES REPORTING CASES	NUMBER OF CASES CONTAINED / NUMBER OF CASES REPORTED													% CONT.
	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	TOTAL*	
SUDAN	/	/	/	/	/	0 / 2	/	/	0 / 1	/	/	/	0 / 3	0%
TOTAL	1 / 1	1 / 2	1 / 4	21 / 29	23 / 32	14 / 24	11 / 17	8 / 12	8 / 13	3 / 5	4 / 7	0 / 2	95 / 148	64

*Provisional

Cells shaded in black denote months when zero indigenous cases were reported. Numbers indicate how many imported cases were contained and reported that month.

Cells shaded in yellow denote months when transmission of GWD from one or more cases was not contained.

[^] The South Sudan GWEP ceased operations on December 16, 2013 as a result of armed conflicts and insecurity. Zero cases of GWD were reported during December 1-16, 2013.

[§] Since April 2012 reports include only Kayes, Koulikoro, Segou, Sikasso, and Mopti Regions; the GWEP was not fully functional in Timbuktu, and Gao Regions throughout 2013, and not at all in Kidal Region.

Number of Reported Cases of Guinea Worm Disease Contained and Number Reported by Month during 2012*
(Countries arranged in descending order of cases in 2011)

COUNTRIES WITH ENDEMIC TRANSMISSION	NUMBER OF CASES CONTAINED / NUMBER OF CASES REPORTED													% CONT.
	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	TOTAL*	
SOUTH SUDAN	2 / 2	3 / 4	37 / 55	50 / 80	79 / 125	84 / 123	45 / 69	14 / 27	10 / 17	9 / 14	2 / 4	1 / 1	336 / 521	64
MALI [^]	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	1 / 1	2 / 3	0 / 0	3 / 3	0 / 0	0 / 0	0 / 0	6 / 7	86
CHAD	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 1	0 / 2	2 / 4	1 / 2	1 / 1	0 / 0	0 / 0	4 / 10	40
ETHIOPIA	0 / 0	0 / 0	0 / 0	0 / 1	1 / 1	0 / 0	0 / 0	1 / 1	0 / 0	0 / 0	0 / 0	0 / 1	2 / 4	50
TOTAL*	2 / 2	3 / 4	37 / 55	50 / 81	80 / 126	85 / 125	47 / 74	17 / 32	14 / 22	10 / 15	2 / 4	1 / 2	348 / 542	64
% CONTAINED	100	75	67	62	63	68	64	53	64	67	50	50	64	

*Provisional

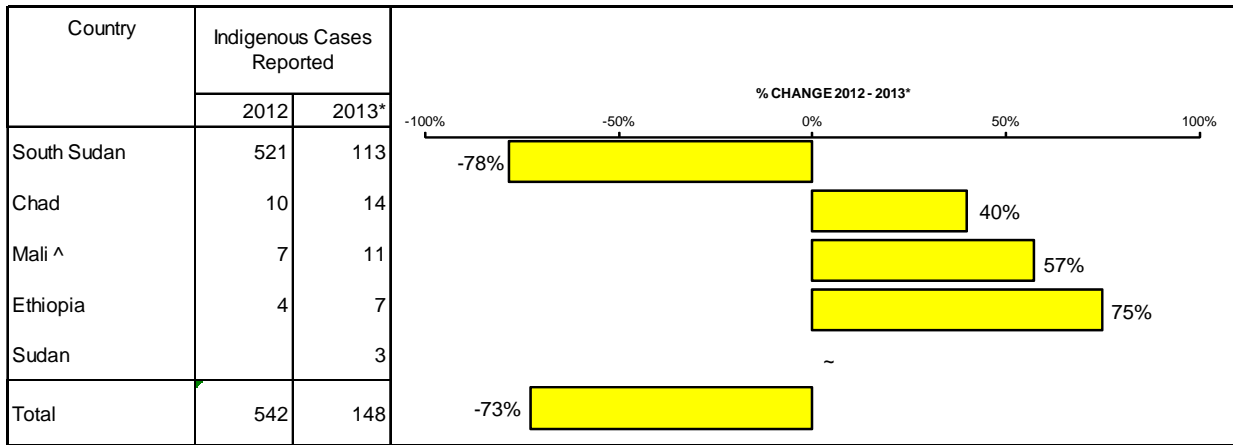
Cells shaded in black denote months when zero indigenous cases were reported. Numbers indicate how many imported cases were contained and reported that month.

Cells shaded in yellow denote months when transmission of GWD from one or more cases was not contained.

[^] Beginning in April 2012 reports include only Kayes, Koulikoro, Segou, Sikasso, Mopti Regions; the GWEP is not currently fully operational in Timbuktu, and Gao Regions, and not at all in Kidal Region. Three Malian residents, confirmed as cases of GWD in Niger during September 2012 (shown in italics), are included in Mali's total for the year. Mali has not ascertained the apparent source of these cases.

Figure 4

Number of Indigenous Cases Reported During the Specified Period in 2012 and 2013*, and Percent Change in Cases Reported

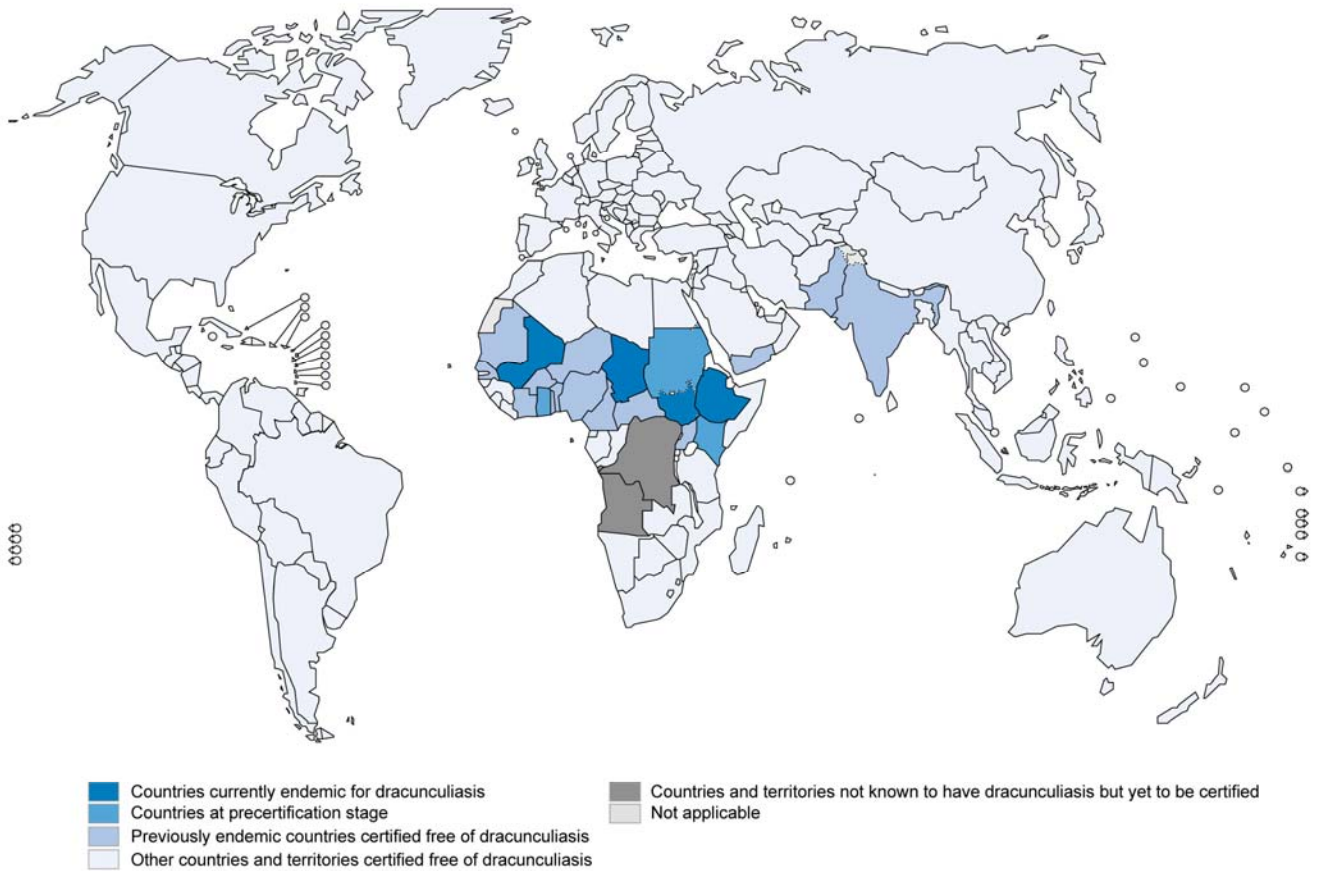


* Provisional.

^ Beginning in April 2012 reports include only Kayes, Koulikoro, Segou, Sikasso, Mopti Regions; the GWEP is not currently fully operational in Timbuktu and Gao Regions, and not at all in Kidal Region.

Figure 5

Status of Certification of Dracunculiasis Eradication, 6 December 2013



The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

Data Source: World Health Organization
 Map Production: Guinea worm Eradication
 World Health Organization



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RECENT PUBLICATIONS

Cairncross, S, 2014. Mother Nature's Surprises. Am J Trop Med Hyg 90:3-4.

Eberhard ML, Ruiz-Tiben E, Hopkins DR, et.al., 2014. The peculiar epidemiology of dracunculiasis in Chad. Am J Trop Med Hyg 90: 61-70.

Eberhard ML, Ruiz-Tiben E. 2014. Case Report: Cutaneous Emergence of *Eustrongylides* in Two Persons from South Sudan. Am J Trop Med Hyg 90 (2):315-317.

Enserink, M. 2014. Guinea Worm Eradication at Risk in South Sudanese War. Science 343(6168): 236.

Voelker R (ed.), 2013. Guinea worm cases declining. JAMA 310:2498.

World Health Organization, 2013. Monthly report on dracunculiasis cases, January-October 2013. Wkly Epidemiol Rec 88:555-556.

MEETINGS

The Executive Board of the World Health Organization will meet at WHO headquarters in Geneva on January 20-25, 2014. Chad's Conselior du Ministre de Sante Publique, Dr. YANKALBE Paboung Matchock Mahouri, is currently a member of the Executive Board.

The annual meeting of National Program Managers of Guinea Worm Eradication Programs will be held in Addis Ababa, Ethiopia on March 19-22, 2014.

Inclusion of information in the Guinea Worm Wrap-Up
does not constitute "publication" of that information.
In memory of BOB KAISER

Contributors to this issue were: the national Guinea Worm Eradication Programs, Drs. Donald R. Hopkins and Ernesto Ruiz-Tiben, of The Carter Center, Dr. Gautam Biswas of WHO, and Drs. Sharon Roy and Mark Eberhard of CDC.

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Back issues are also available on the Carter Center web site English and French are located at http://www.cartercenter.org/news/publications/health/guinea_worm_wrapup_english.html.
http://www.cartercenter.org/news/publications/health/guinea_worm_wrapup_francais.html



CDC is the WHO Collaborating Center for Research, Training, and Eradication of Dracunculiasis.